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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/899,833 | 07/05/2001 | Raymond Walter Ellis | 21183-P001P1 | 9671 |

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| EXAMINER | |
|---|---|
| MAURO JR, THOMAS J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2143 | |

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/899,833 | ELLIS ET AL. | |
| | Examiner | Art Unit | |
| | Thomas J. Mauro Jr. | 2143 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-4,6,8-14,16,18-24,26 and 28-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-14,16,18-24,26 and 28-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20020109, 20020411*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. In response to the preliminary amendment dated August 19, 2004, claims 1-4, 6, 8-14, 16, 18-24, 26 and 28-48 are pending and are presented for examination. A formal action on the merits of claims 1-4, 6, 8-14, 16, 18-24, 26 and 28-48 follows.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 8, 10-12, 18, 20-22, 28, 30, 43, 45 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Rangachari et al. (U.S. 6,470,227).

With respect to claim 1, Rangachari teaches a method for automated tool management comprising the steps of:

receiving a message in a selected protocol by a client application, wherein said message comprises a request to perform an action on a tool, wherein said message identifies an object in an equipment model of said tool, wherein said equipment model comprises a logical representation of said tool **[Rangachari -- Figure 1, Col. 8 lines 43-46, Col. 9 lines 22-42, Col. 10 lines 45-51, Col. 11 lines 4-18 and Col. 13 lines 7-12 – Workflows are created by the user**

**manipulating a GUI at the automation system to select equipment and actions necessary for a job. This message, which is sent using the Semiconductor Equipment Communication Standard protocol (SECS), is received which correlates an object in the workflow with selected actions/methods]**;

invoking a method of said object in response to said message **[Rangachari -- Figure 1 and Col. 10 lines 52-64 – Methods are invoked between application objects and servers to perform specific tasks outlined in the message]**; and

transferring a return value to said client application, wherein said return value is associated with said action **[Rangachari -- Col. 10 lines 64-67 – Col. 11 lines 1-3 – Client is notified of the completion of the task along with any attributes that are needed, i.e. return values]**.

With respect to claim 2, Rangachari further teaches wherein said message further comprises data and wherein said step of invoking passes said data to said method **[Rangachari -- Col. 13 lines 4-41 – Message, i.e. workflow definition, includes parameters, i.e. data which serve to help link together activities and equipment that is to be executed]**.

With respect to claim 8, Rangachari further teaches wherein said protocol comprises the SECS protocol **[Rangachari -- Col. 8 lines 43-45]**.

With respect to claim 10, Rangachari further teaches wherein said data in said message is notification data **[Rangachari -- Col. 10 lines 43-64 and Col. 12 lines 65-67 – Data in**

**messages notifies workflow engine and equipment what task to perform in addition the user is notified of status information of equipment]**.

With respect to claim 11, Rangachari teaches a computer program product having a computer readable medium having computer program logic recorded **[Rangachari -- Col. 6 lines 1-48 – Computer program]**. The remaining limitations are similar to the limitations recited in claim 1 above. Therefore, claim 11 is rejected under the same rationale.

With respect to claims 12, 18 and 20, these are computer program product claims corresponding to the method recited in claims 2, 8 and 10 above. They have similar limitations; therefore, claims 12, 18 and 20 are rejected under the same rationale.

With respect to claim 21, Rangachari teaches a system, comprising: a processor; a memory unit storing a computer program operable for automated tool management **[Rangachari -- Col. 6 lines 1-24 – System including processor and memory]**. The remaining limitations are similar to the limitations recited in claim 1 above. Therefore, claim 21 is rejected under the same rationale.

With respect to claims 22, 28 and 30, these are computer program product claims corresponding to the method recited in claims 2, 8 and 10 above. They have similar limitations; therefore, claims 22, 28 and 30 are rejected under the same rationale.

With respect to claim 43, Rangachari further teaches an application interface unit which interfaces said client application with said equipment model **[Rangachari -- Figure 1, Col. 6 lines 26-51 and lines 57-61, Col. 7 lines 20-24 and Col. 8 lines 17-20 – Application interfaces with equipment via a host interface providing a graphical user interface (GUI) to the client]**.

With respect to claim 45, this is a computer program product claim corresponding to the method claimed in claim 43 above. It has similar limitations; therefore, claim 45 is rejected under the same rationale.

With respect to claim 47, this is a system claim corresponding to the method claimed in claim 43 above. It has similar limitations; therefore, claim 47 is rejected under the same rationale.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-4, 6, 9, 13-14, 16, 19, 23-24, 26, 29, 44, 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangachari et al. (U.S. 6,470,227) in view of Tadokoro et al. (U.S. 6,463,352).

Regarding claim 3, Rangachari teaches the invention substantially as claimed, but fails to explicitly teach requesting data from an asynchronous source, if valid information exists corresponding to said data, creating said return value based on said valid information, if valid information does not exist corresponding to said data, creating said return value based on a database of said equipment model, incorporating said return value into a return message to said client application and transferring said return message in said selected protocol to said client application in response to an address provided by said client application.

Tadokoro, however, discloses a system for management of equipment, i.e. cutting machines, which includes an alarm routine which requests data from a alarm source, i.e. asynchronous source, which returns valid information in a return message to said client application, i.e. GUI or browser, which includes current status information indicating alarm conditions, via graphic or highlight along with job/equipment information or equipment information and past historical values stored in a database if current information is unavailable. Additionally the system

transfers the return messages back to the client application from the routines via COM or RMI protocol to the same address, i.e. machine or browser IP, that requested the data **[Tadokoro -- Figures 11A-D, Col. 10 lines 1-24, Col. 11 lines 5-6, Col. 16 lines 44-65, Col. 18 lines 35-40, Col. 22 lines 1-27 and Col. 28 lines 53-67 – Col. 29 lines 1-67]**.

Both Rangachari and Tadokoro are involved in the same field of endeavor, namely, automating and managing a manufacturing process.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the returning of alarm monitoring information from an asynchronous source, i.e. alarm, which provides alert information, i.e. current or historic, via a message returned to the client application using a selected protocol, as taught by Tadokoro into the invention of Rangachari, in order to improve workflow and efficiency of a system by better monitoring processes, thereby preventing bottlenecks, work stoppages and problems which limit production **[Tadokoro -- Col. 2 lines 10-25]**.

Regarding claim 4, Rangachari-Tadokoro teach the invention substantially as claimed, including wherein if said request comprises a request for data and if said tool is a synchronous source of said data, then the method further comprises the steps of:

retrieving information from said tool **[Tadokoro -- Col. 8 lines 39-46 and Col. 17 lines 10-14 – Collecting objects polls VM objects and reads data from sensors on equipment via a monitoring routine/source, i.e. synchronous source]**;

creating said return value based on said information, incorporating said return value into a return message to said client application, and, transferring said return message in said selected

protocol to said client application in response to an address provided by said client application **[Tadokoro -- Col. 8 lines 24-59, Col. 9 lines 10-26, Col. 10 lines 1-24, Col. 11 lines 5-6, Col. 16 lines 44-65, Col. 17 lines 21-37, Col. 18 lines 35-40 and Col. 30 lines 39-67 – Col. 31 lines 1-20 – Status array is populated with appropriate values and is returned to a calling component via a message through one of various protocols including COM, RMI and HTML, thereby routing the message to the client application, i.e. GUI or browser, via the address that made the request]**.

Regarding claim 6, Rangachari-Tadokoro teach the invention substantially as claimed, including wherein if said request comprises a request for data and if said tool is not one of an asynchronous source of said data and a synchronous source of said data, then the method further comprises the steps: creating said return value based on a database of said equipment model and incorporating said return value into a return message to said client application, and, transferring said return message in said selected protocol to said client application in response to an address provided by said client application **[Rangachari -- Col. 8 lines 43-46 and Col. 10 lines 43-67 – Col. 11 lines 1-18 – Manufacturing system places a request via a message to the system for a manufacturing process which configures equipment and creates a return value via a message using the SECS protocol and sends this message back to the sending client application]**.

Regarding claim 9, Rangachari-Tadokoro teach the invention substantially as claimed, including wherein said method of said object is invoked to remotely access and electronically

diagnose said tool **[Tadokoro -- Figures 1, 2A, 8B, 11D, 12C, Col. 9 lines 10-26, Col. 16 lines 44-65 and Col. 29 lines 60-67 – Col. 30 lines 1-4 – Automation system allows for monitoring of equipment, i.e. for diagnosing the status, remotely over the Internet/Intranet]**.

Regarding claims 13, 14, 16 and 19, these are computer program product claims corresponding to the method claimed in claims 3, 4, 6 and 9 above. They have similar limitations; therefore, claims 13, 14, 16 and 19 are rejected under the same rationale.

Regarding claims 23, 24, 26 and 29, these are computer program product claims corresponding to the method claimed in claims 3, 4, 6 and 9 above. They have similar limitations; therefore, claims 23, 24, 26 and 29 are rejected under the same rationale.

Regarding claim 44, Rangachari-Tadokoro teach the invention substantially as claimed, as aforementioned in claim 4 above, including a tool interface unit which interfaces said tool, with said equipment model **[Rangachari -- Figure 1, Col. 6 lines 25-51 and lines 57-61, Col. 7 lines 20-24 and Col. 8 lines 20-29 – I/O interface provides the system with an interface to the tools, i.e. equipment, via a server]**.

Regarding claim 46, this is a computer program product claim corresponding to the method claimed in claim 44 above. It has similar limitations; therefore, claim 46 is rejected under the same rationale.

Regarding claim 48, this is a system claim corresponding to the method claimed in claim 44 above. It has similar limitations; therefore, claim 48 is rejected under the same rationale.

6. Claims 31-32, 35-36 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangachari et al. (U.S. 6,470,227) in view of O'Brien et al. (U.S. 6,658,571).

Regarding claims 31-32, Rangachari teaches the invention substantially as claimed, but fails to explicitly teach generating a security wrapper layer, wherein said security wrapper layer provides a layer of protection to said model; and creating a security wrapper object in said security wrapper, wherein a pointer to a corresponding object is stored in said security wrapper and transferred to said client application.

O'Brien, however, discloses a security framework for applications to limit exposure to potential attacks by providing a security wrapper layer for system calls which creates a pointer to a corresponding application object within the system thereby providing greater protection against malicious code or wrongful method invocation **[O'Brien -- Col. 2 lines 13-24, Col. 3 lines 41-55, Col. 4 lines 30-48, Col. 5 lines 1-15 and lines 28-46 and Col. 6 lines 18-35]**.

Rangachari would want the benefit of the teachings of O'Brien in order to provide a secure system and transport due to the communications which can occur over the vulnerable Internet **[Rangachari -- Col. 6 lines 22-24]**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the security wrapper layer and security methodology, as taught by O'Brien into the invention of Rangachari, in order to provide security to an application which does not significantly affect performance which limits the amount of potential damage by attackers and does not require using additional hardware or modifications to existing software applications **[O'Brien -- Col. 1 lines 63-67 and Col. 2 lines 1-9]**.

Regarding claims 35-36, these are computer program product claims corresponding to the method claimed in claims 31-32 above. They have similar limitations; therefore, claims 35-36 are rejected under the same rationale.

Regarding claims 39-40, these are system claims corresponding to the method claimed in claims 31-32 above. They have similar limitations; therefore, claims 39-40 are rejected under the same rationale.

7. Claims 33-34, 37-38 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangachari et al. (U.S. 6,470,227) and O'Brien et al. (U.S. 6,658,571), as applied to claims 32, 36 and 40 above respectively, in view of Tadokoro et al. (U.S. 6,463,352).

Regarding claims 33 and 34, Rangachari-O'Brien teach the invention substantially as claimed, but fails to explicitly teach determining if said selected action on said tool can be

performed in response to access rules stored in said corresponding security wrapper object (claim 33) and further if said action can be performed, invoking a method to perform said action (claim 34).

Tadokoro, however, discloses a system which requires users of the system to login, thereby only allowing them to perform actions based upon access rules contained within their profile. Actions which are allowed via their profile cause proper methods to be invoked, i.e. monitoring routine, alarm routine, etc. **[Tadokoro -- Figures 15B-15C and Col. 25 lines 15-67 – Col. 26 lines 1-6]**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the profile rules system for allowing restricted access to the automation system, as taught by Tadokoro into the invention of Rangachari-O'Brien, in order to provide greater security control and more granularity in individual security settings for a system; thereby allowing varying levels of access for individual users.

Regarding claims 37-38, these are computer program product claims corresponding to the method claimed in claims 33-34 above. They have similar limitations; therefore, claims 37-38 are rejected under the same rationale.

Regarding claims 41-42, these are system claims corresponding to the method claimed in claims 33-34 above. They have similar limitations; therefore, claims 41-42 are rejected under the same rationale.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Likes (U.S. 6,349,341) discloses a system for controlling a tool via an application and an intermediate proxy server.

- Hutchins (U.S. 5,291,416) discloses an event feedback for numerically controlled machine tools over a network.

- Wang et al. (U.S. 6,708,223) discloses a providing a security wrapper in a RPC and DCOM environment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Mauro Jr. whose telephone number is 571-272-3917. The examiner can normally be reached on M-F 8:00a.m. - 4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJM
November 24, 2004

BUNJOB JAROENCHONWANIT
PRIMARY EXAMINER